

ML_9 Assignment

March 28, 2019

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In [1]: """In this assignment students have to compress racoon grey scale image into 5 clusters.
at the end, visualize both raw and compressed image and look for quality difference.
The raw image is available in scipy.misc package with the name face.
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Hint:

```
import numpy as np
from sklearn import cluster, datasets
from scipy import misc"""
```

```
#Import Libraries
import numpy as np
from sklearn.cluster import KMeans
import scipy.misc
import matplotlib.pyplot as plt
%matplotlib inline
```

```
#Visualize the gray scale image
```

```
f = scipy.misc.face(gray=True)
plt.figure(figsize=(10, 3.6))
plt.imshow(f, cmap=plt.cm.gray)
plt.show()
```



```
In [2]: # Compressing the gray scale image into 5 clusters
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```
rows = f.shape[0]
cols = f.shape[1]

image = f.reshape(rows*cols,1)
kmeans = KMeans(n_clusters = 5)
kmeans.fit(image)

clusters = np.asarray(kmeans.cluster_centers_)
labels = np.asarray(kmeans.labels_)
labels = labels.reshape(rows,cols);

# Save the compressed image

plt.imsave('compressed_racoon.png',labels);

# Visualize the compressed image

image = plt.imread('compressed_racoon.png')
plt.figure(figsize=(10, 3.6))
plt.imshow(image)
plt.show()
```

